Appendix 13.6-C Material Safety Data Sheets

TELKWA COAL
LIMITED

AN Prill

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Revision Date: 11/20/2018 Date of Issue: 03/28/2014 Supersedes Date: 03/15/2011 Version: 2.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Substance

Product Name: AN Prill

CAS-No.: 6484-52-2

Product Code: 40002

Intended Use of the Product

Manufacture of Explosives.

Name, Address, and Telephone of the Responsible Party

Canada:

Orica Canada Inc.
301 Rue Hotel-de-Ville
Brownsburg-Chatham, QC
J8G 3B5
For SDS Requests:
1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com
www.oricaminingservices.com

USA:

Orica USA Inc.
33101 E. Quincy Avenue
Watkins, CO 80137-9406
For SDS Requests: 1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com

Mexico:

Orica Mexico Inc.
Boulevard Harold R. Pape No. 350
Colonia Telefonistas
Monclova, Coahuila.
C.P. 25758
For SDS Requests: 1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com

Emergency Telephone Number

Emergency Number : **Canada:** 1-877-561-3636 (Orica Transportation Emergency Response)
USA: 1-800-424-9300 (CHEMTREC)
Mexico: 01-800- 002-1400

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN MEXICO CALL:** 01-800- 002-1400. **IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.5 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS-US/CA Classification

Ox. Sol. 3	H272
Eye Irrit. 2A	H319

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :

GHS03

GHS07

Signal Word (GHS-US/CA) : Warning

Hazard Statements (GHS-US/CA) : H272 - May intensify fire; oxidizer.
H319 - Causes serious eye irritation.

Precautionary Statements (GHS-US/CA) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 - Keep away from clothing and other combustible materials.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P280 - Wear protective gloves, protective clothing, and eye protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Overexposure may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Name : AN Prill
CAS-No. : 6484-52-2

Name	Product Identifier	% *
Ammonium nitrate	(CAS-No.) 6484-52-2	100

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Immediately drench affected area with water for at least 15 minutes. Immediately remove contaminated clothing. Get medical advice/attention.

Eye Contact: Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes serious eye irritation. Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Prolonged exposure may cause skin irritation.

Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Ingestion: Ingestion may cause adverse effects. Overexposure to this material may result in methemoglobinemia.

Chronic Symptoms: None known.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand. Hot material burns skin, allowing rapid absorption through the skin and toxic effects can occur quite rapidly. Causes methemoglobinemia – emergency response should treat appropriately, such as by intravenous administration of methylene blue in addition to thermal burn treatment.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: WARNING. DO NOT FIGHT AMMONIUM NITRATE FIRES. Refer to ERG Guide 140. Water supplies, fire hydrants, or other suitable fire control devices such as portable fire extinguishers meeting the standards prescribed in IME SLP-14 should be readily identified for immediate use for small fires that have not engaged TGAN (Technical Grade Ammonium Nitrate) at the site. Flood burning ammonium nitrate with large volumes of low pressure water.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire. Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smothering this product could lead to decomposition and explosion. This product is more sensitive to explosion if contaminated with organic or oxidizable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible. Dry chemical, foams, steam and smothering devices are not effective and can lead to possible explosion and should not be used to fight a fire near explosives. Any extinguishing media other than water may be ineffective, as this product is its own oxygen source.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: May intensify fire; oxidizer.

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Oxidizer: increases the burning rate of combustible materials. Ammonium nitrate may become unstable at temperatures exceeding 204.4°C (400°F). Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Evacuate area in all directions for 1 mile or more if ammonium nitrate is involved in a fire due to unknown conditions at a facility during the emergency might not be known. Only fires which are in the initial (incipient) stage or those involving minimal amounts of ammonium nitrate should be attacked using manual fire extinguishing methods (fire extinguishers, hose streams, etc.) that require a human operator. If a fire in an area where ammonium nitrate is stored or in vehicles transporting ammonium nitrate progresses beyond the incipient stage or involves the ammonium nitrate, evacuation is REQUIRED. All responders assisting in an evacuation who must be located downwind of a fire involving ammonium nitrate should wear self-contained breathing apparatus.

Firefighting Instructions: WARNING. DO NOT FIGHT AMMONIUM NITRATE FIRES. Refer to ERG Guide 140. Do not use any extinguishing agent other than water; through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Protection During Firefighting: When controlling fire before involvement of TGAN, fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear.

Hazardous Combustion Products: Nitrogen oxides. Ammonia. Ammonium nitrate fumes.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing dust. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from combustible material. Use only non-sparking tools.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. Use only non-sparking tools.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Do not take up in combustible material such as: saw dust or cellulosic material. Recover or recycle if possible. Use only non-sparking tools. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: May cause or intensify fire; oxidizer. Avoid heating TGAN (Technical Grade Ammonium Nitrate) in a confined space above 170 °C (338 °F). Processes involving TGAN should be designed to avoid this possibility. Avoid localized heating of TGAN, potentially leading to development of high temperature areas. Owner/operators should ensure that facilities have implemented a "hot work" program consistent with OSHA requirements at 29 CFR 1910.252. Avoid the introduction of gasses in hot, high strength AN (Ammonium Nitrate) solutions. Ammonium nitrate does not burn by itself and thus needs to be kept separate from combustible materials. Ammonium nitrate is an oxidizer and will significantly increase the burning rate of combustible materials. When in confinement and in the presence of a strong detonating source, the material can explode when subject to sudden shock, pressure, or high temperatures.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid breathing vapors, mist, spray. Avoid contact with skin, eyes and clothing. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. All TGAN (Technical Grade Ammonium Nitrate) storage sites should comply with 29 CFR 1910.109(i). At sites where compliance with any provision is impracticable, the owner/operator should demonstrate that an equivalent level of safety is maintained through alternative means. The owner/operator must comply with applicable regulations promulgated by DHS at 6 CFR 27, and USCG at 33 CFR 105. The owner/operator should conduct a thorough site vulnerability assessment to identify gaps in TGAN security and develop and implement appropriate security control measures that will mitigate these security gaps. Considerations should be given to deter, to delay, to detect, and to respond to the identified potential security issues. Owner/operators of TGAN storage sites should ensure that facilities are in full compliance with applicable requirements of the Emergency Planning and Community Right to Know Act. 42 U.S.C. §§ 11001 – 11050.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool and well-ventilated place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Keep in fireproof place.

Incompatible Materials: Avoid contamination of TGAN with combustible materials or organic substances including but not limited to; (i) organic chemicals, acids, or other corrosive materials, (ii) compressed flammable gases, (iii) flammable and combustible materials, solids or liquids, and (iv) other contaminating substances such as wood chips, organic materials, chlorides, phosphorus, finely divided metals, charcoals, diesel fuels and oils, sulfur. Avoid contamination of TGAN with inorganic materials that may contribute to its sensitivity to explosion, including chlorides and some metals, such as chromium, copper, copper alloys such as brass or bronze, cobalt, and nickel, and finely divided or powdered metals. Halogens.

Storage Temperature: < 210 °C (< 410 °F)

Special Rules on Packaging: Bins and structural materials/members in immediate contact with TGAN (Technical Grade Ammonium Nitrate) should be constructed of non-combustible materials. Bins should be kept padlocked at all times, except to load or unload TGAN. The contents of each bin should be clearly identified by the proper shipping name of the material, "AMMONIUM NITRATE" written in 2-inch high, capital letters below the NFPA fire diamond.

Specific End Use(s)

Manufacture of Explosives.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Particulates not otherwise classified (PNOC)		
USA ACGIH	ACGIH TWA (mg/m³)	3 mg/m³ Respirable fraction 10 mg/m³ Total Dust
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³ Respirable fraction 15 mg/m³ Total Dust
Alberta	OEL TWA (mg/m³)	10 mg/m³ (total) 3 mg/m³ (respirable)
British Columbia	OEL TWA (mg/m³)	10 mg/m³ (nuisance dust-total dust) 3 mg/m³ (nuisance dust-respirable fraction)
Manitoba	OEL TWA (mg/m³)	10 mg/m³ (inhalable particles, recommended) 3 mg/m³ (respirable particles, recommended)
New Brunswick	OEL TWA (mg/m³)	3 mg/m³ (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction) 10 mg/m³ (particulate matter containing no Asbestos and <1% Crystalline silica, inhalable fraction)
Newfoundland & Labrador	OEL TWA (mg/m³)	10 mg/m³ (inhalable particles, recommended) 3 mg/m³ (respirable particles, recommended)
Nova Scotia	OEL TWA (mg/m³)	10 mg/m³ (inhalable particles, recommended) 3 mg/m³ (respirable particles, recommended)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (insoluble or poorly soluble-inhalable fraction) 6 mg/m³ (insoluble or poorly soluble-respirable fraction)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (insoluble or poorly soluble-inhalable fraction) 3 mg/m³ (insoluble or poorly soluble-respirable fraction)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (insoluble or poorly soluble-inhalable fraction) 6 mg/m³ (insoluble or poorly soluble-respirable fraction)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (insoluble or poorly soluble-inhalable fraction) 3 mg/m³ (insoluble or poorly soluble-respirable fraction)
Ontario	OEL TWA (mg/m³)	10 mg/m³ (inhalable) 3 mg/m³ (respirable)
Prince Edward Island	OEL TWA (mg/m³)	10 mg/m³ (inhalable particles, recommended) 3 mg/m³ (respirable particles, recommended)
Québec	VEMP (mg/m³)	10 mg/m³ (including dust, inert or nuisance particulates-total dust)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (insoluble or poorly soluble-inhalable fraction) 6 mg/m³ (insoluble or poorly soluble-respirable fraction)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (insoluble or poorly soluble-inhalable fraction) 3 mg/m³ (insoluble or poorly soluble-respirable fraction)

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles.

Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles or safety glasses with side shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Solid
Appearance	:	Grey or white prills
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	5 - 6 (0.1M solution in water)
Evaporation Rate	:	Not available
Melting Point	:	160 - 165 °C (320 - 329 °F)
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Spontaneously decomposes at 210 °C (410 °F)
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	0 mm Hg @20 °C (68 °F)
Relative Vapor Density at 20°C	:	Not available
Relative Density	:	1.72 (per prill)
Density	:	0.8 - 0.84 g/cm³
Specific Gravity	:	Not available
Solubility	:	76 g/ml, Soluble in alkalis, alcohols, acetone. Insoluble in ether.
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available
Oxidizing Properties	:	May intensify fire; oxidizer.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Oxidizer: increases the burning rate of combustible materials. Ammonium nitrate may become unstable at temperatures exceeding 204.4°C (400°F). Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

Chemical Stability: Stable under normal conditions. May cause fire or explosion; strong oxidizer.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight, extremely high or low temperatures, ignition sources, combustible materials, incompatible materials. Avoid shock and friction.

Incompatible Materials: Avoid contamination of TGAN with combustible materials or organic substances including but not limited to; (i) organic chemicals, acids, or other corrosive materials, (ii) compressed flammable gases, (iii) flammable and combustible materials, solids or liquids, and (iv) other contaminating substances such as wood chips, organic materials, chlorides, phosphorus, finely divided metals, charcoals, diesel fuels and oils, sulfur. Avoid contamination of TGAN with inorganic materials that may contribute to its sensitivity to explosion, including chlorides and some metals, such as chromium, copper, copper alloys such as brass or bronze, cobalt, and nickel, and finely divided or powdered metals. Halogens.

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates toxic vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified
LD50 and LC50 Data: Not available
Skin Corrosion/Irritation: Not classified
pH: 5 - 6 (0.1M solution in water)
Eye Damage/Irritation: Causes serious eye irritation.
pH: 5 - 6 (0.1M solution in water)
Respiratory or Skin Sensitization: Not classified
Germ Cell Mutagenicity: Not classified
Carcinogenicity: Not classified
Specific Target Organ Toxicity (Repeated Exposure): Not classified
Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Aspiration Hazard: Not classified
Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.
Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.
Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.
Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.
Chronic Symptoms: None known.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg
LC50 Inhalation Rat	> 88.8 mg/l/4h

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Not classified.

Ammonium nitrate (6484-52-2)	
LC50 Fish 1	542 mg/l
EC50 Daphnia 1	555 mg/l

Persistence and Degradability

AN Prill (6484-52-2)	
Persistence and Degradability	Not established.

Bioaccumulative Potential

AN Prill (6484-52-2)	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Destroy and dispose of in accordance with applicable local, state, provincial, territorial, federal and international regulations. Consult with an Orica technical representative.
Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.
Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In Accordance with DOT

Proper Shipping Name : AMMONIUM NITRATE
Hazard Class : 5.1
Identification Number : UN1942
Label Codes : 5.1
Packing Group : III
ERG Number : 140

In Accordance with IMDG

Proper Shipping Name : AMMONIUM NITRATE
Hazard Class : 5.1
Identification Number : UN1942
Label Codes : 5.1
Packing Group : III
EmS-No. (Fire) : F-H
EmS-No. (Spillage) : S-Q

In Accordance with IATA

Proper Shipping Name : AMMONIUM NITRATE
Identification Number : 5.1
Hazard Class : UN1942
Label Codes : 5.1
Packing Group : III
ERG Code (IATA) : 5L

In Accordance with TDG

Proper Shipping Name : AMMONIUM NITRATE
Hazard Class : 5.1
Identification Number : UN1942
Label Codes : 5.1
Packing Group : III

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

AN Prill (6484-52-2)	
SARA Section 311/312 Hazard Classes	Physical hazard - Oxidizer (liquid, solid or gas) Health hazard - Serious eye damage or eye irritation

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Ammonium nitrate (6484-52-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Canadian Regulations

Ammonium nitrate (6484-52-2)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 11/20/2018

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Ox. Sol. 3	Oxidizing solids Category 3
H272	May intensify fire; oxidizer
H319	Causes serious eye irritation

All information contained herein and in any supporting documents is provided for informational purposes only and is as accurate and up-to-date as possible at the time of publication. Since Orica and its related entities cannot anticipate or control the conditions under which this information may be used, users must review this information in the specific context of the intended application and must make their own determinations as to the suitability of this information for such users' purposes. To the maximum extent permitted by law, nothing contained herein and in any supporting documents shall be deemed to be an express or implied warranty, and Orica expressly disclaims all warranties and representations, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Orica will not be responsible for any loss whatsoever resulting from any use or reliance upon this information.

NA GHS SDS 2015 (Can, US, Mex)

TECHNICAL DATA SHEET

Ammonium Nitrate
USA, Canada and Mexico

Description
Low density Industrial Grade Prills.

Application
Prilled Ammonium Nitrate (NH4NO3) is the primary oxidizer used in the production of ammonium nitrate fuel oil mixtures (ANFO); the most cost-effective bulk explosive for dry, surface and underground blasting applications.

Key Benefits
- Manufacture of Ammonium Nitrate / Fuel Oil blends, bulk emulsion blends, packaged emulsion products, packaged slurry products, and NCN explosives.
- Ammonium Nitrate is transported as an oxidizer.

Packaging
Bagged Production: Available in 25 kg (55 lb) two-ply polyethylene valve bags, or 25 kg (55 lb) polypropylene bags.

FIBC Production: Available in 400 kg (882 lb) to 1000 kg (2205 lb) capacities.

Bulk: Available in road truck, or rail car quantities (volumes per DOT restrictions).

Storage and Handling
Storage

Due to its hygroscopic nature, it is important that the product be stored in dry silos or storage sheds, and not in humid or wet conditions. The internal crystalline structure of the product transitions at 32° C (90° F) and -18° C (0° F). In conjunction with these changes there are corresponding volume changes of 3.6% and 2.8% respectively. Repeated cycling through these temperatures can break down the structure of the product. This is most important during summer and winter months, where day/night temperature variations pass through either of these transition temperatures. If such exposure is unavoidable, expedient consumption is recommended.
If there is any concern an Orica Technical Representative should be contacted.

Technical Properties

Ammonium Nitrate	
Bulk Density (g / cc)	0.74 – 0.87
Oil Absorption (wt%)	> 5.7
Size Distribution (wt%)	Tyler 6 – 20 (3.3 – 0.83 mm) > 95%
Total Nitrogen (wt%)	> 34
Moisture[1]	< 0.25
Coating (wt%)	0.04 - 0.15 organic
PH (10% solution)	4.5 – 6.0

Disposal

Disposal of explosive materials can be hazardous. Methods of safe disposal of explosives may vary, depending on the user's situation. Please contact an Orica Technical Representative for information on safe practices.

Product Classification USA

Authorized Name:	Ammonium nitrate
Proper Shipping Name:	Ammonium nitrate
UN No:	1942
Classification:	5.1

Product Classification Canada

Authorized Name:	Ammonium Nitrate
Proper Shipping Name:	Ammonium Nitrate
UN No:	1942
Classification:	5.1

All regulations pertaining to the handling and use of such explosives apply.

orica.com

Ammonium Nitrate
USA, Canada and Mexico

Safety
Ammonium Nitrate poses the following hazards:
- Supports combustion
- Decomposes with excessive heating, releasing toxic fumes
- Potential for fire of explosion if heated during confinement
- Thermal and chemical burns
- Toxic to aquatic organisms

See the MSDS for complete product details.

Disclaimer

For more information please visit our website: www.orica.com

Orica's North America headquarters can be reached at:
Tel: +1 303 268 5000
Fax: +1 303 268 5250

Emergency Telephone Numbers
For chemical emergencies (24 hour) involving transportation, spill, leak, release, fire or accidents:

Canada: Orica Canada emergency response 1-877-561-3636

USA: Chemtrec 1-800- 424-9300

Notes:

(1.) Ammonium Nitrate is hygroscopic. Any contact with moisture or humid air can weaken and break down the prill's internal crystalline structure.

Fortis Extra ANE, Fortis Clear ANE, Flexigel Clear ANE, Flexigel ANE, Vistis ANE

Safety Data Sheet

According To The Hazardous Products Regulation (February 11, 2015).

Revision Date: 01/07/2019 Date of Issue: 10/29/2018 Version: 1.1

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Fortis Extra ANE, Fortis Clear ANE, Flexigel Clear ANE, Flexigel ANE, Vistis ANE

Intended Use of the Product

A booster sensitive emulsion explosive when sensitized. For professional use only.

Name, Address, and Telephone of the Responsible Party

Canada:

Orica Canada Inc.
301 Rue Hotel-de-Ville
Brownsburg-Chatham, QC
J8G 3B5
For SDS Requests:
1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com
www.oricaminingservices.com

Emergency Telephone Number

Emergency Number : **Canada:** 1-877-561-3636 (Orica Transportation Emergency Response)
USA: 1-800-424-9300 (CHEMTREC)
Mexico: 01-800- 002-1400

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN MEXICO CALL:** 01-800- 002-1400. **IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.5 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS-CA Classification

Flam. Liq. 1	H224
Ox. Liq. 3	H272
Eye Irrit. 2A	H319
Carc. 1	H350
STOT RE 2	H373
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS-CA Labeling

Hazard Pictograms (GHS-CA) :

GHS02 GHS03 GHS07 GHS08

Signal Word (GHS-CA) : Danger

Hazard Statements (GHS-CA) : H224 - Extremely flammable liquid and vapor.
H272 - May intensify fire; oxidizer.
H319 - Causes serious eye irritation.

Precautionary Statements (GHS-CA)	:	H350 - May cause cancer. H373 - May cause damage to organs (blood, liver, spleen, thymus) through prolonged or repeated exposure. H402 - Harmful to aquatic life. H412 - Harmful to aquatic life with long lasting effects. P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P220 - Keep away from clothing and other combustible materials. P233 - Keep container tightly closed. P240 - Ground/bond container and receiving equipment. P241 - Use explosion-proof electrical, ventilating, and lighting equipment. P242 - Use only non-sparking tools. P243 - Take action to prevent static discharges. P260 - Do not breathe vapors, mist, or spray. P264 - Wash hands, forearms, and other exposed areas thoroughly after handling. P273 - Avoid release to the environment. P280 - Wear protective gloves, protective clothing, and eye protection. P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 - If exposed or concerned: Get medical advice/attention. P314 - Get medical advice/attention if you feel unwell. P337+P313 - If eye irritation persists: Get medical advice/attention. P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish. P403+P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up. P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Unknown Acute Toxicity (GHS-CA) Not available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	% *
Ammonium nitrate	(CAS-No.) 6484-52-2	70 - 85
Petroleum	(CAS-No.) 8002-05-9	3 - 7

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Immediately drench affected area with water for at least 15 minutes. Immediately remove contaminated clothing. If exposed or concerned: Get medical advice/attention. Get medical advice/attention.

Eye Contact: Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes serious eye irritation. May cause cancer. May cause damage to organs (blood, liver, spleen, thymus) through prolonged or repeated exposure. Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Prolonged exposure may cause skin irritation.

Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Ingestion: Ingestion may cause adverse effects. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Symptoms: May cause cancer. May cause damage to organs (blood, liver, spleen, thymus) through prolonged or repeated exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand. Causes methemoglobinemia – emergency response should treat appropriately, such as by intravenous administration of methylene blue.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water spray, fog (flooding amounts). Water may be ineffective but water should be used to keep fire-exposed container cool.

Unsuitable Extinguishing Media: Attempts to smother a fire involving this product will be ineffective as it is its own oxygen source. Smothering this product could lead to decomposition and explosion. This product is more sensitive to explosion if contaminated with organic or oxidizable material or if heated while confined. Unless the mass of product on fire is flooded with water, re-ignition is possible. Dry chemical, foams, steam and smothering devices are not effective and can lead to possible explosion and should not be used to fight a fire near explosives. Any extinguishing media other than water may be ineffective, as this product is its own oxygen source.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Extremely flammable liquid and vapor. May intensify fire; oxidizer.

Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. May form flammable or explosive vapor-air mixture. Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors.

Reactivity: Oxidizer: increases the burning rate of combustible materials. Reacts violently with strong oxidizers. Increased risk of fire or explosion. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Do not breathe fumes from fires or vapors from decomposition. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO_2). Nitrogen oxides. Ammonium nitrate fumes. Ammonia. Hydrocarbons. Sulfur compounds. Sulfur oxides. Sodium oxides. Silicon oxides. Hydrogen chloride. Acrid smoke and irritating fumes.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from combustible material. Use special care to avoid static electric charges.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel. Stop leak if safe to do so.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Ventilate area. Eliminate ignition sources. Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Use only non-sparking tools. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Absorb and/or contain spill with inert material. Do not take up in combustible material such as: saw dust or cellulosic material. Transfer spilled material to a suitable container for disposal. Use only non-sparking tools. Contact competent authorities after a spill.

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Handle empty containers with care because residual vapors are flammable. May cause or intensify fire; oxidizer. Under specific conditions of acidity and in the presence of amines, this product has the potential to form carcinogenic nitrosamine compounds.

Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not breathe dust, fume, mist, vapors, or spray. Avoid contact with skin, eyes and clothing. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use appropriate personal protective equipment (PPE).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use approved electrical, ventilating, and lighting equipment. Store as defined in the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR Part 555.

Storage Conditions: Store in a dry, cool and well-ventilated place. Containers which are opened should be properly resealed and kept upright to prevent leakage. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area. Keep in fire resistant place.

Incompatible Materials: Reducing agents, strong acids and bases, metal powders, combustible materials, chromates, zinc, copper and copper alloys, chlorates, oils, lubricants, halogens, halogenated compounds, solvents, sulfides, chlorine, nitric acid, nitrates.

Storage Temperature: 10 - 27 °C (50-80.6 °F)

Specific End Use(s)

A booster sensitive emulsion explosive when sensitized. For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

Petroleum (8002-05-9)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³ (15 min)
USA IDLH	US IDLH (ppm)	1100 ppm (10% LEL)

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed. Use approved electrical equipment. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Eye protection. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles or safety glasses with side shield.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Environmental Exposure Controls: Avoid release to the environment.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Orange or off white viscous liquid
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	4 - 6
Evaporation Rate	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	230 - 265 °C (446 - 509 °F)
Decomposition Temperature	:	210 °C (410 °F)
Flammability (solid, gas)	:	Not applicable
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	0 mm Hg (@ 20°C)

Relative Vapor Density at 20°C	:	Not available
Relative Density	:	1.33 - 1.35 (water = 1)
Specific Gravity	:	1.33 - 1.35
Solubility	:	Water: Slightly soluble Organic solvent:Slightly soluble
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Oxidizer: increases the burning rate of combustible materials. Reacts violently with strong oxidizers. Increased risk of fire or explosion. Hazardous reactions may occur on contact with certain chemicals. Refer to incompatible materials.

Chemical Stability: Stable under recommended handling and storage conditions. May intensify fire; oxidizer. Extremely flammable liquid and vapor. May form flammable or explosive vapor-air mixture.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Keep away from open flames, hot surfaces and sources of ignition. Direct sunlight, extremely high or low temperatures, ignition sources, combustible materials, incompatible materials.

Incompatible Materials: Reducing agents, strong acids and bases, metal powders, combustible materials, chromates, zinc, copper and copper alloys, chlorates, oils, lubricants, halogens, halogenated compounds, solvents, sulfides, chlorine, nitric acid, nitrates.

Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. At temperatures above 210°C, decomposition may be explosive, especially if confined.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

pH: 4 - 6

Eye Damage/Irritation: Causes serious eye irritation.

pH: 4 - 6

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.

Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Symptoms: May cause cancer. May cause damage to organs (blood, liver, spleen, thymus) through prolonged or repeated exposure.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg

LC50 Inhalation Rat	> 88.8 mg/l/4h

Petroleum (8002-05-9)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg

Petroleum (8002-05-9)	
IARC Group	3

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Harmful to aquatic life with long lasting effects.

Ammonium nitrate (6484-52-2)	
LC50 Fish 1	542 mg/l
EC50 Daphnia 1	555 mg/l

Petroleum (8002-05-9)	
LC50 Fish 1	7.1 mg/l (Species: Pimephales promelas, Exposure time 96 h)
LC50 other aquatic organisms 1	2.7 mg/l LL50 96 hr (Kelp forest mysid shrimp)
EC50 Daphnia 1	6.9 mg/l (Exposure time: 48 h)

Persistence and Degradability

Fortis Extra ANE, Fortis Clear ANE, Flexigel Clear ANE, Flexigel ANE, Vistis ANE	
Persistence and Degradability	May cause long-term adverse effects in the environment.

Bioaccumulative Potential

Fortis Extra ANE, Fortis Clear ANE, Flexigel Clear ANE, Flexigel ANE, Vistis ANE	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Mobility in Soil **Not available**

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Destroy and dispose of in accordance with applicable local, state, provincial, territorial, federal and international regulations. Consult with an Orica technical representative.

Additional Information: Handle empty containers with care because residual vapors are flammable.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In Accordance with TDG

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.5D
Identification Number : UN0332
Label Codes : 1.5D

Packing Group : II

In Accordance with DOT

Proper Shipping Name : AMMONIUM NITRATE EMULSION
Hazard Class : 5.1
Identification Number : UN3375
Label Codes : 5.1

Packing Group : II

ERG Number : 140

In Accordance with IMDG

Proper Shipping Name : AMMONIUM NITRATE EMULSION

Hazard Class : 5.1

Identification Number : UN3375

Label Codes : 5.1

Packing Group : II

EmS-No. (Fire) : F-H

EmS-No. (Spillage) : S-Q

In Accordance with IATA

Proper Shipping Name : AMMONIUM NITRATE EMULSION

Hazard Class : 5.1

Identification Number : UN3375

Label Codes : 5.1

ERG Code (IATA) : 5L

SECTION 15: REGULATORY INFORMATION

Canadian Regulations

Ammonium nitrate (6484-52-2)
Listed on the Canadian DSL (Domestic Substances List)

Petroleum (8002-05-9)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 01/07/2019

Other Information : This document has been prepared in accordance with the SDS requirements of Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1	Carcinogenicity, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 1	Flammable liquids Category 1
Ox. Liq. 3	Oxidizing liquids Category 3
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H224	Extremely flammable liquid and vapor
H272	May intensify fire; oxidizer
H319	Causes serious eye irritation
H350	May cause cancer
H373	May cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

All information contained herein and in any supporting documents is provided for informational purposes only and is as accurate and up-to-date as possible at the time of publication. Since Orica and its related entities cannot anticipate or control the conditions under which this information may be used, users must review this information in the specific context of the intended application and must make their own determinations as to the suitability of this information for such users' purposes. To the maximum extent permitted by law, nothing contained herein and in any supporting documents shall be deemed to be an express or implied warranty, and Orica expressly disclaims all warranties and representations, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Orica will not be responsible for any loss whatsoever resulting from any use or reliance upon this information.

CA GHS SDS

TECHNICAL DATA SHEET

Fortel™ Plus
USA and Canada

Description
Fortel™ Plus is a high energy, all-purpose, large diameter emulsion. The explosive is white in color with a firm putty-like consistency.

Application
Economical, booster-sensitive Fortel™ Plus emulsion explosive is an ideal wet-hole column load. Fortel™ Plus is energized to give it good heave and make it an effective toe load for tough rock conditions.

Key Benefits
- Fortel™ Plus reduces blasting costs and improves digging efficiency.
- Fortel™ Plus reduces costs when used to build a toe load out of water, allowing the use of Amex™ as a column load in holes with wet toes.
- Fortel™ Plus improves loading efficiency: no plugged holes.
- Fortel™ Plus makes a good combination primer for Amex™ blasting agent in large diameter holes.
- Fortel™ Plus is highly water resistant which minimizes leaching and reduces environmental impact.
- OH&S issues around the handling and storage of nitroglycerin are eliminated.
- Fortel™ Plus is an energized emulsion with very good heave energy.

Technical Properties

Fortel™ Plus		
Cartridge Density		1.26 - 1.30 g/cc
Velocity of Detonation[1]	m/s (1,000's)	4.2
	ft/s (1,000's)	13.8
Water Resistance		Excellent
Fume Class		2
Relative Effective Energy (REE) [2]	Relative Weight Strength (RWS)	110
	Relative Bulk Strength (RBS)	178

Recommendations for Use

Blasthole Depth
Fortel™ Plus is suitable for use in holes of any practical depth providing contained water does not exceed 20m (65.6 ft.) depth.

Priming and Initiation
Fortel™ Plus explosive is a booster sensitive explosive and must be in direct contact with the largest possible diameter Senatel™ detonator sensitive explosive or an appropriately sized Pentex™ booster. Use of detonating cord with Fortel™ Plus is not recommended. Detonating cord may adversely affect the performance of Fortel™ Plus and could result in misfires in boreholes less than 75 mm (3 in.) in diameter. Consult an Orica representative before attempting to use with detonating cord.

Charging
In small diameter blastholes the maximum energy per meter of blasthole can be achieved by tamping the explosive with a wooden tamping rod appropriate to the hole diameter. No metal instrument should be used to tamp explosives. The primer cartridge containing a detonator must not be tamped.

Sleep Time within Blastholes
The sleep time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present. Fortel™ Plus will give good performance after two weeks immersion.

Fortel™ Plus
USA and Canada

Packaging

In large diameters, Fortel™ Plus is available in polywoven shot bags. For medium size holes, this product can be supplied in high strength, tear resistant film. Standard sizes are as follows:

Size (mm x kg)	Size (in. x lb)	Packaging
65 x 18	2 ½ x 8	Ribbed
75 x 6	3 x 13	Ribbed
90 x 7	3½ x 15	Ribbed
100 x 9	4 x 20	Polyweave
115 x 10	4½ x 22	Polyweave
125 x 10	5 x 22	Polyweave
125 x 13	5 x 30	Polyweave
140 x 16	5½ x 35	Polyweave
155 x 18	6 x 40	Polyweave
165 x 22	6½ x 50	Polyweave
175 x 22	7 x 50	Polyweave
200 x 23	8 x 50	Polyweave

Storage and Handling

Product Classification

Authorized Name: Fortel™ Plus
Proper Shipping Name: Explosive, blasting, type E
UN No: 0332
Classification: 1.5D

All regulations pertaining to the handling and use of such explosives apply.

Storage

Store Fortel™ Plus in a suitably licensed magazine for Class 1.5D explosives. The cases should be stacked in the manner designated on the case.

Fortel™ Plus has a storage **shelf life** of up to 12 months from manufacture date in a well ventilated, approved magazine, even in hot and humid extremes.

Fortel™ Plus is best stored at temperatures above -15°C (5°F). This is especially important in cold weather "load and shoot" worksites where there is insufficient inhole warm-up time.
Fortel™ Plus should have an internal temperature of 0°C (32°F) or higher, before use with a pneumatic cartridge loading machine.

For recommended good practices in transporting, storing, handling, and using this product, refer to the "Always and Never" booklet packed inside each case.

Transport

Fortel™ Plus should be transported between -40°C (-40ºF) and +30°C (104ºF).

Disposal

Disposal of explosive materials can be hazardous. Methods of safe disposal of explosives may vary depending on the user's situation. Please contact an Orica Technical Services Representative for information on safe practices.

Safety

The post detonation fume characteristics of Fortel™ Plus make the product suitable for both underground and surface blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

Fortel™ Plus can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, Fortel™ Plus should be handled and stored with care and must be kept clear of flame and excessive heat.

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For more information please visit our website: www.orica.com

Orica's North America headquarters can be reached at:
Tel: +1 303 268 5000
Fax: +1 303 268 5250

Emergency Telephone Numbers
For chemical emergencies (24 hour) involving transportation, spill, leak, release, fire or accidents:

Canada: Orica Canada emergency response 1-877-561-3636

USA: Chemtrec 1-800- 424-9300

Notes:

(1.) Unconfined at 5ºC (41ºF). VOD will depend on application including explosive density, blasthole diameter and degree of confinement. The VOD range is based on minimum unconfined and calculated ideal.

(2.) The Relative Effective Energy (REE) of an explosive is the energy calculated to be available to do effective blasting work. All energy values are calculated using the IDeX™ computer code owned by Orica for the exclusive use of its companies. Energy values are based on standard ANFO with a density of 0.84 g/cc and a cut-off pressure of 100Mpa. Other computer codes may give different values

TECHNICAL DATA SHEET

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USA and Canada

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Key Benefits
- Fortel™ Plus reduces blasting costs and improves digging efficiency.
- Fortel™ Plus reduces costs when used to build a toe load out of water, allowing the use of Amex™ as a column load in holes with wet toes.
- Fortel™ Plus improves loading efficiency: no plugged holes.
- Fortel™ Plus makes a good combination primer for Amex™ blasting agent in large diameter holes.
- Fortel™ Plus is highly water resistant which minimizes leaching and reduces environmental impact.
- OH&S issues around the handling and storage of nitroglycerin are eliminated.
- Fortel™ Plus is an energized emulsion with very good heave energy.

Technical Properties

Fortel™ Plus		
Cartridge Density		1.26 - 1.30 g/cc
Velocity of Detonation[1]	m/s (1,000's)	4.2
	ft/s (1,000's)	13.8
Water Resistance		Excellent
Fume Class		2
Relative Effective Energy (REE) [2]	Relative Weight Strength (RWS)	110
	Relative Bulk Strength (RBS)	178

Recommendations for Use

Blasthole Depth
Fortel™ Plus is suitable for use in holes of any practical depth providing contained water does not exceed 20m (65.6 ft.) depth.

Priming and Initiation
Fortel™ Plus explosive is a booster sensitive explosive and must be in direct contact with the largest possible diameter Senatel™ detonator sensitive explosive or an appropriately sized Pentex™ booster. Use of detonating cord with Fortel™ Plus is not recommended. Detonating cord may adversely affect the performance of Fortel™ Plus and could result in misfires in boreholes less than 75 mm (3 in.) in diameter. Consult an Orica representative before attempting to use with detonating cord.

Charging
In small diameter blastholes the maximum energy per meter of blasthole can be achieved by tamping the explosive with a wooden tamping rod appropriate to the hole diameter. No metal instrument should be used to tamp explosives. The primer cartridge containing a detonator must not be tamped.

Sleep Time within Blastholes
The sleep time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present. Fortel™ Plus will give good performance after two weeks immersion.

Fortel™ Plus
USA and Canada

Packaging

In large diameters, Fortel™ Plus is available in polywoven shot bags. For medium size holes, this product can be supplied in high strength, tear resistant film. Standard sizes are as follows:

Size (mm x kg)	Size (in. x lb)	Packaging
65 x 3.6	2 ½ x 8	Ribbed
75 x 6	3 x 13	Ribbed
90 x 7	3½ x 15	Ribbed
100 x 9	4 x 20	Polyweave
115 x 10	4½ x 22	Polyweave
125 x 10	5 x 22	Polyweave
125 x 13	5 x 30	Polyweave
140 x 16	5½ x 35	Polyweave
155 x 18	6 x 40	Polyweave
165 x 22	6½ x 50	Polyweave
175 x 22	7 x 50	Polyweave
200 x 23	8 x 50	Polyweave

Storage and Handling

Product Classification

Authorized Name: Fortel™ Plus
Proper Shipping Name: Explosive, blasting, type E
UN No: 0332
Classification: 1.5D

All regulations pertaining to the handling and use of such explosives apply.

Storage

Store Fortel™ Plus in a suitably licensed magazine for Class 1.5D explosives. The cases should be stacked in the manner designated on the case.

Fortel™ Plus has a storage **shelf life** of up to 12 months from manufacture date in a well ventilated, approved magazine, even in hot and humid extremes.

Fortel™ Plus is best stored at temperatures above -15°C (5°F). This is especially important in cold weather "load and shoot" worksites where there is insufficient inhole warm-up time.
Fortel™ Plus should have an internal temperature of 0°C (32°F) or higher, before use with a pneumatic cartridge loading machine.

For recommended good practices in transporting, storing, handling, and using this product, refer to the "Always and Never" booklet packed inside each case.

Transport

Fortel™ Plus should be transported between -40°C (-40ºF) and +30°C (104ºF).

Disposal

Disposal of explosive materials can be hazardous. Methods of safe disposal of explosives may vary depending on the user's situation. Please contact an Orica Technical Services Representative for information on safe practices.

Safety

The post detonation fume characteristics of Fortel™ Plus make the product suitable for both underground and surface blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

Fortel™ Plus can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, Fortel™ Plus should be handled and stored with care and must be kept clear of flame and excessive heat.

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Orica's North America headquarters can be reached at:
Tel: +1 303 268 5000
Fax: +1 303 268 5250

Emergency Telephone Numbers
For chemical emergencies (24 hour) involving transportation, spill, leak, release, fire or accidents:

Canada: Orica Canada emergency response 1-877-561-3636

USA: Chemtrec 1-800- 424-9300

Notes:

(1.) Unconfined at 5ºC (41ºF). VOD will depend on application including explosive density, blasthole diameter and degree of confinement. The VOD range is based on minimum unconfined and calculated ideal.

(2.) The Relative Effective Energy (REE) of an explosive is the energy calculated to be available to do effective blasting work. All energy values are calculated using the IDeX™ computer code owned by Orica for the exclusive use of its companies. Energy values are based on standard ANFO with a density of 0.84 g/cc and a cut-off pressure of 100Mpa. Other computer codes may give different values

TECHNICAL DATA SHEET

Fortis™ Extra

Ammonium Nitrate Emulsion Phase
USA & Canada

Description

Fortis™ Extra Ammonium Nitrate Emulsion Phase (ANE) is the emulsion component for use by mines to blend with ANFO to produce explosive products on site. It is a non-explosive emulsion product manufactured from oxidizer solution and fuel.

Fortis™ Extra ANE appears as an opaque, yellow colored viscous fluid, similar to a light grease or heavy oil.

Application

Fortis™ Extra ANE is manufactured by Orica to the highest quality standards and is delivered via tanker trucks or Iso tanks into appropriate holding tanks on the mine.

Fortis™ Extra ANE can be only used to manufacture authorized Fortis™ Extra and Fortan™ Extra Series of explosive products. Before mixing at any specific site, licenses are required from the appropriate Regulatory Authority

Technical Properties

Fortis™ Extra ANE is an explosive precursor. Technical properties related to its explosive characteristics can be found on the Fortis™ Extra and Fortan™ Extra technical data sheet.

Fortis™ Extra ANE Density	1.32g/cc

Recommendations for Use

Fortis™ Extra ANE is recommended for manufacturing the full range of ANFO/emulsion Fortis™ Extra and Fortan™ Extra products. Fortis™ Extra ANE must be blended with ANFO in the appropriate ratio to ensure optimum performance. Contact your local Orica Technical Representative for advice.

Ground Temperature

Fortis™ Extra ANE is suitable for products used in ground temperatures 0°C (32ºF) to a maximum of 55°C (131ºF). If your application requires you to operate outside this temperature range, please contact your local Orica Technical Representative.

Storage and Handling

Product Classification - Canada

Authorized Name:	Fortis™ Extra ANE
Correct Shipping Name:	Explosive, blasting, type E
UN No:	0332
Classification:	1.5D

Product Classification - USA

Authorized Name:	Fortis™ Extra ANE
Correct Shipping Name:	Ammonium Nitrate Emulsion
UN No:	3375
Classification:	5.1

All regulations pertaining to the handling and use of such explosives apply.

Storage

Fortis™ Extra ANE can be stored on site for up to 3 months before use. However, the formation of crystals in the emulsion is the first sign of the product reaching the end of its life span. If practical, oldest stock should be used first.

If there is any concern with the product quality an Orica Technical Representative should be contacted.

Disposal

Disposal of explosive materials can be hazardous. Methods of safe disposal of explosives may vary depending on the user's situation. Please contact an Orica Technical Services Representative for information on safe practices.

Safety

Fortis™ Extra ANE contains only non-explosive ingredients. In its delivered state it is not an explosive and does not form an explosive until it is blended with ANFO or sensitized by an appropriate method.

Explosives based on Ammonium Nitrate such as the Fortis™ Extra ANE may react with pyritic materials in the ground and create potentially hazardous situations. Orica accepts no

responsibility for any loss or liability arising from use of the product in ground containing pyritic or other reactive material.

Disclaimer

For more information please visit our website: www.orica.com

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Fax: +1 303 268 5250

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Canada: Orica Canada emergency response 1-877-561-3636

USA: Chemtrec 1-800- 424-9300

TECHNICAL DATA SHEET

Senatel™ Powersplit™
USA & Canada

Description
Senatel™ Powersplit™ detonator sensitive emulsion explosive is internally traced with 10 g/m detonating cord that ensures fast and complete detonation. The emulsion is orange in color with a putty-like consistency.

Application
Senatel™ Powersplit™ is designed for blasting operations where a continuous length of decoupled explosive charge is required. Senatel™ Powersplit™ suits perimeter blasting applications such as smooth wall blasting, trimming and pre-splitting.

Key Benefits
- Senatel™ Powersplit™ is fast to load into blastholes due to the internally traced high strength detonating cord.
- The small diameter, high velocity of detonation, and low decoupled energy of Senatel™ Powersplit™ minimizes blast damage to the walls leaving behind a smooth profile with minimal overbreak.
- Senatel™ Powersplit™ is water resistant and can be used in wet and dry blastholes down to depths of 75m / 250ft.
- The center traced detonating cord in Senatel™ Powersplit™ ensures reliable detonation of the decoupled charge..
- Senatel™ Powersplit™ has high sensitivity, excellent stability, and superior water performance as compared to watergels.

Technical Properties

Senatel™ Powersplit™		
Typical Velocity of Detonation (Detonation Cord Only)[1]		7,000 m/s 23,000 ft/s
Typical Velocity of Detonation (Emulsion Only)[1]		5,000 m/s 16,400 ft/s
Water Resistance		Excellent
Fume Class		1
Relative Effective Energy (REE) [2]	Relative Weight Strength (RWS)	93
	Relative Bulk Strength (RBS)	130

Recommendations for Use
For more information consult the “How to guide for tying-in Senatel™ Powersplit™ in vertical and horizontal holes” or your Orica Technical Representative.

Sleep-Time within Blastholes
The sleep-time in a blasthole is influenced by the extent of damage to the packaging and by the nature of any water present. Senatel™ Powersplit™ will give good performance for up to 2 months. In wet blastholes, sleeping of the explosive is not recommended due to seepage of water into any exposed ends of the detonating cord. If in doubt when using Senatel™ Powersplit™, contact your local Orica sales office.

Re-entry period after firing
When using packaged explosive and detonating cord systems, in pre-split applications, consideration must be given to increasing the routine re-entry period after firing. In pre-split applications rare incidents of post-blast events have been observed. In most instances these events have been in the form of flaring or rumbling of the muckpile.

Senatel™ Powersplit™
USA & Canada

Post blast events typically occur seconds after the blast, but events have been noted after several minutes. One event occurred nearly 30 minutes after the blast.
If holes are stemmed, additional care must be taken in setting re-entry times. The use of stemming has been seen to increase the period between the shot and any post blast events. Where holes are stemmed it is also recommended that no potentially combustible materials are used, and re-entry periods must account for any post detonation fumes being trapped in the muckpile. Please consult your local Orica technical representative for advice.

Packaging
Senatel™ Powersplit™ is packaged in continuous Valeron film and double clipped every 400mm (15¾ in.). Senatel™ Powersplit™ is packaged in white plastic film to clearly differentiate it from booster sensitive packaged explosives. Standard cartridge sizes are as follows:

Sizes		Load Factor		Cartridges / Case
(mm x m)	(in. x ft.)	kg/m	lb/ft	
22 x 50	⅞ x 164	0.50	0.34	120 – 130
32 x 27	1¼ x 89	0.92	0.62	64 – 70
40 x 18.5	1½ x 61	1.35	0.91	44 – 47
45 x 13.8	1¾ x 45	1.78	1.20	32 – 36

Storage and Handling
Product Classification
Authorized Name: Senatel™ Powersplit™
Proper Shipping Name: Explosive, blasting, type E
UN No: 0241
Classification: 1.1D

All regulations pertaining to the handling and use of such explosives apply.

Storage
Store Senatel™ Powersplit™ in a suitably licensed magazine for Class 1.1D explosives. The cases should be stacked in the manner designated on the case.

Senatel™ Powersplit™ has a **shelf life** of up to 18 months in a well-ventilated, approved magazine, even in hot and humid extremes. Senatel™ Powersplit™ is best stored at temperatures above -15°C (5°F).

Transport
Senatel™ Powersplit™ should be transported between -40°C (-40ºF) and +40°C (104ºF).

Disposal
Disposal of explosive materials can be hazardous. Methods of safe disposal of explosives may vary depending on the user's situation. Please contact an Orica Technical Services Representative for information on safe practices.

Safety
The post detonation fume characteristics of Senatel™ Powersplit™ make the product suitable for surface blasting applications. Users should ensure that adequate ventilation is provided prior to re-entry into the blast area.

Senatel™ Powersplit™ can be initiated by extremes of shock, friction or mechanical impact. As with all explosives, keep Senatel™ Powersplit™ clear of flame and excessive heat.

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Emergency Telephone Numbers

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USA: Chemtrec 1-800- 424-9300

Notes:

(1.) Unconfined at 5ºC (41ºF). VOD will depend on application including explosive density blasthole diameter and degree of confinement. The VOD range is based on minimum unconfined and calculated ideal.

(2.) The Relative Effective Energy (REE) of an explosive is the energy calculated to be available to do effective blasting work. All energy values are calculated using the IDeX™ computer code owned by Orica for the exclusive use of its companies. Energy values are based on standard ANFO with a density of 0.84 g/cc and a cut-off pressure of 100Mpa. Other computer codes may give different values.

Senatel Powersplit

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Date of Issue: 02/12/2020 Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Senatel Powersplit

1.2. Intended Use of the Product

Use Of The Substance/Mixture: No use is specified.

1.3. Name, Address, and Telephone of the Responsible Party

USA:

Orica USA Inc.
33101 E. Quincy Avenue
Watkins, CO 80137-9406
For SDS Requests: 1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com

Canada:

Orica Canada Inc.
301 Rue Hotel-de-Ville
Brownsburg-Chatham, QC
J8G 3B5
For SDS Requests:
1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com
www.oricaminingservices.com

1.4. Emergency Telephone Number

Emergency Number : **Canada:** 1-877-561-3636 (Orica Transportation Emergency Response)
USA: 1-800-424-9300 (CHEMTREC)

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.5 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

The explosive classification below only applies to US 29 CFR 1910.1200 (HCS/HazCom 2012). The explosive classification is excluded from Canada Hazardous Products Regulations (HPR, SOR/2015-17), it is regulated under the Canada Explosives Act (R.S.C., 1985, c. E-17)

Expl. 1.1	H201
Flam. Liq. 1	H224
Ox. Liq. 3	H272
Eye Irrit. 2A	H319
Carc. 1	H350
STOT RE 2	H373
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Any labeling elements (pictograms, signal word, hazard, and precautionary statements) related to explosive classifications apply to the OSHA Hazard Communication Standard (HCS, 29 CFR 1910.1200) only and are excluded from Canada's Hazardous Products Regulations (HPR, SOR/2015-17)

Hazard Pictograms (GHS-US/CA) :

GHS02 GHS03 GHS07 GHS08

Signal Word (GHS-US/CA) : Danger

Hazard Statements (GHS-US/CA) :
H224 - Extremely flammable liquid and vapour.
H272 - May intensify fire; oxidizer.
H319 - Causes serious eye irritation.
H350 - May cause cancer (Inhalation).
H373 - May cause damage to organs (lungs) through prolonged or repeated exposure (Inhalation).
H402 - Harmful to aquatic life.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements (GHS-US/CA) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 - Keep away from clothing and other combustible materials.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating, and lighting equipment.
P242 - Use only non-sparking tools.
P243 - Take action to prevent static discharges.
P260 - Do not breathe vapors, mist, or spray.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, and eye protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use appropriate media (see section 5) to extinguish.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	% *

Ammonium nitrate	Ammonium(I) nitrate (1:1) / Nitric acid ammonium salt / Nitric acid, ammonium salt / Nitric acid ammonium salt (1:1)	(CAS-No.) 6484-52-2	70 - 80
Sodium nitrate	Nitric acid sodium salt / Nitric acid, sodium salt / Sodium(I) nitrate (1:1) / Nitric acid sodium salt (1:1) / SODIUM NITRATE	(CAS-No.) 7631-99-4	7 - 13
Water	AQUA	(CAS-No.) 7732-18-5	<= 13
Petroleum	Crude oil / Oils, petroleum / Petroleum (A complex combination of hydrocarbons. It consists predominantly of aliphatic, alicyclic and aromatic hydrocarbons. It may also contain small amounts of nitrogen, oxygen and sulfur compounds. This category encompasses light, medium, and heavy petroleums, as well as the oils extracted from tar sands. Hydrocarbonaceous materials requiring major chemical changes for their recovery or conversion to petroleum refinery feedstocks such as crude shale oils, upgraded shale oils and liquid coal fuels are not included in this definition.) / Petroleum crude / Petroleum crude oil / Oil, crude / Petroleum (crude) / Crude petroleum / Petroleum oils / Petroleum distillates / Coal oils / Petroleum oil / Petroleum based oil / Crude oil hydrocarbon volatiles / Petroleum; Crude oil [A complex combination of hydrocarbons, It consists predominantly of aliphatic, alicyclic and aromatic hydrocarbons. It may also contain small amounts of nitrogen, oxygen and sulfur compounds. This category encompasses light, medium, and heavy petroleums, as well as the oils extended from tar sands. Hydrocarbonaceous materials requiring major chemical changes for their recovery or conversion to petroleum refinery feedstocks such as crude shale oils; upgraded shale oils and liquid coal fuels are not included in this definition.]	(CAS-No.) 8002-05-9	3 - 7
Glass, oxide, chemicals	Glass, oxide / Glass / Sodium calcium polyphosphate / Glass powder / Calcium sodium polyphosphate / Sodium calcium polyphosphate silicate / Sodium zinc potassium polyphosphate / Glass flake / Calcium aluminum borosilicate / Glass dust / GLASS / Fiberglass	(CAS-No.) 65997-17-3	0.97 - 5
Polyisobutylene	1-Propene, 2-methyl-, homopolymer / Polyisobutene / Poly(4+) isobutylene / POLYISOBUTENE	(CAS-No.) 9003-27-4	0.5 - 2
Sorbitan, (Z)-9-octadecenoate (2:3)	Sorbitan sesquioleate / Sorbitan, (9Z)-9-octadecenoate (2:3) / Sorbitan, sesquioleate / SORBITAN SESQUIOLEATE / 1,4-Anhydro-5,6-di-O-(9Z)-9-octadecenoyl-D-glucitol	(CAS-No.) 8007-43-0	0.5 - 2
Paraffin waxes and Hydrocarbon waxes	Paraffin wax / Paraffin wax fume / Wax, paraffin / Wax, synthetic paraffin / Paraffin / Paraffin waxes / Paraffin waxes and hydrocarbon waxes / PARAFFIN / Synthetic wax / Solid saturated hydrocarbon / Hydrocarbon waxes / Wax / SYNTHETIC WAX / n-Paraffins / Petroleum wax	(CAS-No.) 8002-74-2	0.5 - 2
Paraffin waxes and Hydrocarbon waxes, microcrystalline	Microcrystalline wax / Wax, microcrystalline / AL-3 / Paraffin waxes and hydrocarbon waxes, microcrystalline / CERA MICROCRISTALLINA / Hydrocarbon waxes, microcrystalline / Be square 195 white and amber / Paraffin waxes and hydrocarbon waxes, microcrystalline (A complex combination of long, branched chain hydrocarbons obtained from residual oils by solvent crystallization. It consists predominantly of saturated straight and branched chain hydrocarbons predominantly >C35.)	(CAS-No.) 63231-60-7	0.5 - 2
Pentaerythrite tetranitrate	2,2-Bis(hydroxymethyl)-1,3-propanediol tetranitrate / Pentaerithrityl tetranitrate / Pentaerythritol tetranitrate / 1,3-Propanediol, 2,2-bis[(nitrooxy)methyl]-, dinitrate (ester) / Pentaerythrite tetranitrate mixture, n.o.s. /	(CAS-No.) 78-11-5	0.5 - 2

	Pentaerythrite tetranitrate mixture, desensitized, solid, n.o.s. / Pentaerythrityl tetranitrate / 1,3-Propanediol, 2,2-bis[(nitrooxy)methyl]-, 1,3-dinitrate / PETN / Pentrite / Pentaerythrite tetranitrate, wetted or desensitized / Pentaerythrite tetranitrate, desensitized / Pentaerythrite tetranitrate, wetted / Pentaerythrite tetranitrate mixture, desensitized solid, n.o.s. / PETN mixture desensitized, solid, n.o.s. / P.E.T.N.		
Silica, amorphous, precipitated and gel	Precipitated silica / Silica gel / Silica gel, precipitated, crystalline free / Silica, amorphous, gel / Silica gel, precipitated, crystalline-free / Silica gel, crystalline free / Precipitated silica and silica gel / Silica gel, crystalline-free / Hydrated silica / Amorphous silicon dioxide / Synthetic amorphous silicon dioxide / Silica gel, precipitated / Dioxosilane / Silica, amorphous and synthetic, precipitated and gel	(CAS-No.) 112926-00-8	< 0.15

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Immediately drench affected area with water for at least 15 minutes. Immediately remove contaminated clothing. If exposed or concerned: Get medical advice/attention. Get medical advice/attention.

Eye Contact: Immediately rinse with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: May cause damage to organs (lungs) through prolonged or repeated exposure (Inhalation). Causes serious eye irritation. May cause cancer (Inhalation).

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Prolonged exposure may cause skin irritation.

Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Ingestion: Ingestion may cause adverse effects. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Symptoms: May cause damage to organs (lungs) through prolonged or repeated exposure (Inhalation). May cause cancer by inhalation.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Unsuitable Extinguishing Media: DO NOT fight fires involving explosives.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Extremely flammable liquid and vapor. Explosive, could cause fire and secondary explosions. May intensify fire; oxidizer.

Explosion Hazard: Explosives, Division 1.1 - Chemicals and items which have a mass explosion hazard (a mass explosion is one which affects almost the entire quantity present virtually instantaneously). Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. May form flammable or explosive vapor-air mixture.
Reactivity: Extreme risk of explosion by shock, friction, fire or other sources of ignition. Oxidizer: increases the burning rate of combustible materials. Reacts violently with strong oxidizers. Increased risk of fire or explosion.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. This product is an explosive with mass detonation hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.
Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.
Hazardous Combustion Products: Carbon oxides (CO, CO_2). Nitrous fumes. Metal oxide fumes.
Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe vapor, mist or spray. Evacuate danger area. Avoid all contact with skin, eyes, or clothing. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from combustible material. Use special care to avoid static electric charges.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).
Emergency Procedures: Evacuate unnecessary personnel. Evacuate danger area. Stop leak if safe to do so.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.
Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area. Eliminate ignition sources.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Absorb and contain with inert material. Place contents in suitable container for disposal. Use only non-sparking tools. As an immediate precautionary measure, isolate spill or leak area in all directions.
Methods for Cleaning Up: Use only non-sparking tools. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material. Absorb and/or contain spill with inert material. Use only non-sparking tools.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: May cause or intensify fire; oxidizer. Handle empty containers with care because residual vapors are flammable.
Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Keep away from sources of ignition - No smoking. Do not handle until all safety precautions have been read and understood. Do not breathe mist, spray, vapors, fume. Avoid contact with skin, eyes and clothing. Take precautionary measures against static discharge. Use only non-sparking tools.

Hygiene Measures: This product is an explosive and should only be used under the supervision of trained and licensed personnel. Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Take action to prevent static discharges. Ground and bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment.

Storage Conditions: Store under moderate temperatures recommended by competent authority. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles. Store locked up/in a secure area. Keep/Store away from combustible materials, organic material, ignition sources, incompatible materials. Keep in fireproof place. Store in a well-ventilated place. Keep container tightly closed.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. Combustible materials. Water reactive materials. Alkalis. Metals.

Special Rules on Packaging: Keep only in the original container.

7.3. Specific End Use(s)

No use is specified.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

Petroleum (8002-05-9)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³ (15 min)

Glass, oxide, chemicals (65997-17-3)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ total dust, 5 mg/m3, respirable fraction 8 hr
USA NIOSH	NIOSH REL (TWA) (mg/m³)	3 fibers/cm³ (fibers ≤3.5 µm in diameter & ≥10µm in length), TWA 5mg/m3 (total)
Yukon	OEL TWA (mg/m³)	30 mppcf (dust or fibrous) 10 mg/m³ (dust or fibrous)

Paraffin waxes and Hydrocarbon waxes (8002-74-2)		
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³ (fume)
USA NIOSH	NIOSH REL (TWA) (mg/m³)	2 mg/m³ (fume)
Alberta	OEL TWA (mg/m³)	2 mg/m³ (fume)
British Columbia	OEL TWA (mg/m³)	2 mg/m³ (fume)
Manitoba	OEL TWA (mg/m³)	2 mg/m³ (fume)
New Brunswick	OEL TWA (mg/m³)	2 mg/m³ (fume)
Newfoundland & Labrador	OEL TWA (mg/m³)	2 mg/m³ (fume)
Nova Scotia	OEL TWA (mg/m³)	2 mg/m³ (fume)
Nunavut	OEL STEL (mg/m³)	4 mg/m³
Nunavut	OEL TWA (mg/m³)	2 mg/m³
Northwest Territories	OEL STEL (mg/m³)	4 mg/m³
Northwest Territories	OEL TWA (mg/m³)	2 mg/m³
Ontario	OEL TWA (mg/m³)	2 mg/m³ (fume)
Prince Edward Island	OEL TWA (mg/m³)	2 mg/m³ (fume)
Québec	VEMP (mg/m³)	2 mg/m³ (fume)
Saskatchewan	OEL STEL (mg/m³)	4 mg/m³
Saskatchewan	OEL TWA (mg/m³)	2 mg/m³

Yukon	OEL STEL (mg/m³)	6 mg/m³ (fume)
Yukon	OEL TWA (mg/m³)	2 mg/m³ (fume)
Silica, amorphous, precipitated and gel (112926-00-8)		
British Columbia	OEL TWA (mg/m³)	4 mg/m³ (total) 1.5 mg/m³ (respirable)
New Brunswick	OEL TWA (mg/m³)	10 mg/m³ (Silica - amorphous, precipitated silica and silica gel)
Nunavut	OEL STEL (mg/m³)	20 mg/m³ (Silica amorphous)
Nunavut	OEL TWA (mg/m³)	10 mg/m³ (Silica amorphous)
Northwest Territories	OEL STEL (mg/m³)	20 mg/m³ (Silica amorphous)
Northwest Territories	OEL TWA (mg/m³)	10 mg/m³ (Silica amorphous)
Québec	VEMP (mg/m³)	6 mg/m³ (containing no Asbestos and <1% Crystalline silica-respirable dust)
Saskatchewan	OEL STEL (mg/m³)	20 mg/m³ (Silica amorphous)
Saskatchewan	OEL TWA (mg/m³)	10 mg/m³ (Silica amorphous)

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Product to be handled in a closed system and under strictly controlled conditions. Use explosion-proof equipment. Gas detectors should be used when flammable gases or vapors may be released. Gas detectors should be used when flammable gases or vapors may be released. Proper grounding procedures to avoid static electricity should be followed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.

Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Not available
Odor	:	Not available
Odor Threshold	:	Not available
pH	:	Not available
Evaporation Rate	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not applicable
Lower Flammable Limit	:	Not available

Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20°C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	Not available
Solubility	:	Not available
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available
Oxidizing Properties	:	Oxidizing liquid 3 - May intensify fire; oxidizer.
Explosive Properties	:	Explosives, Division 1.1 - Chemicals and items which have a mass explosion hazard (a mass explosion is one which affects almost the entire quantity present virtually instantaneously)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Extreme risk of explosion by shock, friction, fire or other sources of ignition. Oxidizer: increases the burning rate of combustible materials. Reacts violently with strong oxidizers. Increased risk of fire or explosion.

10.2. Chemical Stability: Extreme risk of explosion by shock, friction, fire or other sources of ignition. May intensify fire; oxidizer. Extremely flammable liquid and vapor. May form flammable or explosive vapor-air mixture.

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Keep away from open flames, hot surfaces and sources of ignition. Incompatible materials. Direct sunlight, extremely high or low temperatures, ignition sources, combustible materials, incompatible materials. Direct sunlight, extremely high or low temperatures, heat, hot surfaces, sparks, open flames, incompatible materials, and other ignition sources.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers. Combustible materials. Water reactive materials. Alkalis. Metals.

10.6. Hazardous Decomposition Products: Explosive decomposition on exposure to temperature rise: release of toxic and corrosive gases/vapors.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified
Acute Toxicity (Dermal): Not classified
Acute Toxicity (Inhalation): Not classified
LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs (lungs) through prolonged or repeated exposure (Inhalation).

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.

Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects. Ingestion may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia. If ingested, nitrates may be reduced to nitrites by bacteria in the digestive tract. Signs and symptoms of nitrite poisoning include methemoglobinemia, nausea, dizziness, increased heart rate, hypotension, fainting and, possibly shock.

Chronic Symptoms: May cause damage to organs (lungs) through prolonged or repeated exposure (Inhalation). May cause cancer by inhalation.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg
LC50 Inhalation Rat	> 88.8 mg/l/4h
Sodium nitrate (7631-99-4)	
LD50 Oral Rat	3430 mg/kg (Species: Sprague-Dawley)
LD50 Dermal Rat	> 5000 mg/kg (Species: Sprague-Dawley)
Petroleum (8002-05-9)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
Sorbitan, (Z)-9-octadecenoate (2:3) (8007-43-0)	
LD50 Oral Rat	> 5000 mg/kg
LC50 Inhalation Rat	> 5.27 mg/l/4h
Paraffin waxes and Hydrocarbon waxes (8002-74-2)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 3600 mg/kg
Paraffin waxes and Hydrocarbon waxes, microcrystalline (63231-60-7)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 3600 mg/kg
Pentaerythrite tetranitrate (78-11-5)	
LD50 Oral Rat	1660 mg/kg
Petroleum (8002-05-9)	
IARC Group	3
Glass, oxide, chemicals (65997-17-3)	
IARC Group	2B
National Toxicology Program (NTP) Status	Reasonably anticipated to be Human Carcinogen.
Silica, amorphous, precipitated and gel (112926-00-8)	
IARC Group	3

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Harmful to aquatic life with long lasting effects.

Ammonium nitrate (6484-52-2)	
LC50 Fish 1	542 mg/l
EC50 Daphnia 1	555 mg/l
Sodium nitrate (7631-99-4)	
LC50 Fish 1	2000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC50 Fish 2	994.4 - 1107 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
Petroleum (8002-05-9)	
LC50 Fish 1	7.1 mg/l (Species: Pimephales promelas, Exposure time 96 h)
LC50 Other Aquatic Organisms 1	2.7 mg/l LL50 96 hr (Kelp forest mysid shrimp)
EC50 Daphnia 1	6.9 mg/l (Exposure time: 48 h)
Pentaerythrite tetranitrate (78-11-5)	
LC50 Fish 1	926 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
Silica, amorphous, precipitated and gel (112926-00-8)	
LC50 Fish 1	10000 mg/l

12.2. Persistence and Degradability

Senatel Powersplit	
Persistence and Degradability	May cause long-term adverse effects in the environment.

Sodium nitrate (7631-99-4)	
Persistence and Degradability	Readily biodegradable in water.

12.3. Bioaccumulative Potential

Senatel Powersplit	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Sodium nitrate (7631-99-4)	
Log Pow	-3.8 (at 25 °C)
Bioaccumulative Potential	Not expected to bioaccumulate.

Paraffin waxes and Hydrocarbon waxes, microcrystalline (63231-60-7)	
Log Pow	> 6

12.4. Mobility in Soil
Not available

12.5. Other Adverse Effects
Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.
Additional Information: Handle empty containers with care because residual vapors are flammable.
Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

DOT (CAA) # : EX2008020491

14.2. In Accordance with IMDG
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

EmS-No. (Fire) : F-B
EmS-No. (Spillage) : S-X

14.3. In Accordance with IATA
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
ERG Code (IATA) : 1L

14.4. In Accordance with TDG
Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

Packing Group : II

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Senatel Powersplit	
SARA Section 311/312 Hazard Classes	Physical hazard - Explosive Physical hazard - Oxidizer (liquid, solid or gas) Physical hazard - Flammable (gases, aerosols, liquids, or solids) Health hazard - Serious eye damage or eye irritation Health hazard - Carcinogenicity Health hazard - Specific target organ toxicity (single or repeated exposure)

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium nitrate (7631-99-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Water (7732-18-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Petroleum (8002-05-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Glass, oxide, chemicals (65997-17-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Polyisobutylene (9003-27-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

Sorbitan, (Z)-9-octadecenoate (2:3) (8007-43-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Paraffin waxes and Hydrocarbon waxes (8002-74-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Paraffin waxes and Hydrocarbon waxes, microcrystalline (63231-60-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Pentaerythrite tetranitrate (78-11-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a final TSCA section 4 test rule.

15.2. US State Regulations

Ammonium nitrate (6484-52-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Sodium nitrate (7631-99-4)
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

Petroleum (8002-05-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Paraffin waxes and Hydrocarbon waxes (8002-74-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

Pentaerythrite tetranitrate (78-11-5)
U.S. - New Jersey - Right to Know Hazardous Substance List

Silica, amorphous, precipitated and gel (112926-00-8)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

15.3. Canadian Regulations

Ammonium nitrate (6484-52-2)
Listed on the Canadian DSL (Domestic Substances List)

Sodium nitrate (7631-99-4)
Listed on the Canadian DSL (Domestic Substances List)

Water (7732-18-5)
Listed on the Canadian DSL (Domestic Substances List)

Petroleum (8002-05-9)
Listed on the Canadian DSL (Domestic Substances List)

Glass, oxide, chemicals (65997-17-3)
Listed on the Canadian DSL (Domestic Substances List)

Polyisobutylene (9003-27-4)
Listed on the Canadian DSL (Domestic Substances List)

Sorbitan, (Z)-9-octadecenoate (2:3) (8007-43-0)
Listed on the Canadian DSL (Domestic Substances List)

Paraffin waxes and Hydrocarbon waxes (8002-74-2)
Listed on the Canadian DSL (Domestic Substances List)

Paraffin waxes and Hydrocarbon waxes, microcrystalline (63231-60-7)
Listed on the Canadian DSL (Domestic Substances List)

Pentaerythrite tetranitrate (78-11-5)
Listed on the Canadian DSL (Domestic Substances List)

Silica, amorphous, precipitated and gel (112926-00-8)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 02/12/2020

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Expl. 1.1	Explosive Category 1.1
H201	Explosive; mass explosion hazard
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1	Carcinogenicity, Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 1	Flammable liquids Category 1
Ox. Liq. 3	Oxidizing liquids Category 3
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H224	Extremely flammable liquid and vapor
H272	May intensify fire; oxidizer

H319	Causes serious eye irritation
H350	May cause cancer
H373	May cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

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